

D.A.O.
ClerkTuesday, 10/3/2006 2:58:09 PM
Kim Johnston

Process Sheet

Customer : CU-DAR001 Dart Helicopters Services
Job Number : 28843
Estimate Number : 12545
P.O. Number : *N/A*
This Issue : 10/3/2006 **S.O. No.** : *N/A*
Prsht Rev. : NC
First Issue : *N/A* **Type** : LARGE FAB ASSY
Previous Run : *N/A*
Written By : _____
Checked & Approved By : *061003*
Comment : Est Rev:G BE-FORMAT 02-03-28 SM

Drawing Name : SHORT STEP ASSEMBLY, LO-SKID
Part Number : D350591115
Drawing Number : D2354 REV D
Project Number : N/A
Drawing Revision : D
Material : *N/A*
Due Date : 10/22/2006 **Qty:** 8 **Um:** Each

Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description :
---------	-----------------------	---------------

1.0	DC	DOCUMENT CONTROL
-----	----	------------------

**Comment:** DOCUMENT CONTROLPhotocopy bluefile and type labels as per PPP D350-591-115 CHG001003 *06.10.05* *KS 06.10.11*

2.0	D2244116	Step Extrusion
-----	----------	----------------

**Comment:** Qty.: 1.0000 Each(s)/Unit Total : 8.0000 Each(s)

Pick:

Qty	Part Number	Description	Batch
1	D2244-128 Extrusion		<i>323404</i>

FE 06.10.04

3.0	LARGE FAB 1	LARGE FABRICATION RESOURCE 1
-----	-------------	------------------------------

**Comment:** LARGE FABRICATION RESOURCE 1

1-Cut D2244-128 extrusion to 59.34" long as per Dwg D2354

2-Drill extrusion per Dwg D2354 using Jig DT8230 for rivets.

3-Deburr and bevel ends.

4-Drill hole for bushings and countersink per drawing D2311

FE 06.10.04
FE 06.10.05
FE 06.10.05

4.0	QC5	INSPECT WORK TO CURRENT STEP
-----	-----	------------------------------

**Comment:** INSPECT WORK TO CURRENT STEP*06.10.05*

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D350-591-115 PAR #: N/A Fault Category: Prod / Large PAR. ASS. NCR: Yes No DQA: JS Date: 06/10/25
 QA: N/C Closed: JS Date: 06.10.25

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
06-10-05	3.0	AFT hole drilled in wrong location, on all steps. 1 step drilled open to 1st stop scrap.	<i>[Signature]</i>	Replace 1 stop: destroy scrap stop. Fill aft 128 with weld and grind flush. Drill 128 in proper location	<i>[Signature]</i> 06-10-05	<i>[Signature]</i> 06-10-05 06/10/11	<i>[Signature]</i>	06-10-05
06-10-05	3.0	on replacement stop. 8 holes were drilled on the sides instead of 6.	<i>[Signature]</i>	Fill the last 2 holes with weld and grind flush as per QSI 004. Ensure no weld spillage inside or loose mat'l that will create a possible foreign object in the stop	<i>[Signature]</i> 06-10-05	<i>[Signature]</i> 06-10-05 06/10/11	<i>[Signature]</i>	06-10-05

NOTE: Date & initial all entries

Date: Tuesday, 10/3/2006 2:58:09 PM
User: Kim Johnston

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: SHORT STEP ASSEMBLY, LO-SKID

Job Number: 28843

Part Number: D350591115

Job Number:



Seq. #:

Machine Or Operation:

Description :

5.0

D267334

End Plate



Comment: Qty.: 2.0000 Each(s)/Unit Total: 16.0000 Each(s)

End Cap

Batch: B25396 = 8

P.E. 06.10.5

6.0

D2275

Bushing



Comment: Qty.: 1.0000 Each(s)/Unit Total: 8.0000 Each(s)

Bushing

Batch: B17557 = 8

P.E. 06.10.5

7.0

LARGE FAB 1

LARGE FABRICATION RESOURCE 1



Comment: LARGE FABRICATION RESOURCE 1

1-Weld Fwd cap and bushing as per Dwg D2354

Aluminum Rod Batch M15689 M19612

P.E. 06.10.6

2-Grind end cap and bottom bushing welds flush

P.E. 06.10.9

3-Machine bushing top weld flush

P.E. 06.10.9

8.0

QC5/9

WELD INSPECTION



Comment: WELD INSPECTION

Jan 10-11 @

LA 06/10/11 (8)

9.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Chemical Conversion Coat as per QSI 005 4.1

FC 06 10 14 (8)

10.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

P.E. 06.10.16

11.0

D26431

Lo Skid Step LH



Comment: Qty.: 1.0000 Each(s)/Unit Total: 8.0000 Each(s)

Lo Skid Step LH

Batch: B16928

P.E. 06.10.16

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Tuesday, 10/3/2006 2:58:09 PM
User: Kim Johnston

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: SHORT STEP ASSEMBLY, LO-SKID

Job Number: 28843

Part Number: D350591115

Job Number:



Seq. #:

Machine Or Operation:

Description :

12.0

D26432

LO SKID STEP RT



Comment: Qty.: 1.0000 Each(s)/Unit Total : 8.0000 Each(s)

LO SKID STEP RT

Batch: 316929 = 8

PE. 06.10.16

8

13.0

MS20600AD4W3

Cherry Rivets



Comment: Qty.: 1.0000 Each(s)/Unit Total : 8.0000 Each(s)

Cherry Rivets

Batch: M101415

PE. 06.10.16

8

14.0

LARGE FAB 1

LARGE FABRICATION RESOURCE 1



Comment: LARGE FABRICATION RESOURCE 1

1-Rivet Leg Assembly as per Dwg D2354

2-Inspect for foreign object per QSI 024

3-Weld Aft end cap as per Dwg D2354

AL ROD A/R Batch: M19612 M18838

4-Grind end cap welds flush

PE. 06.10.16

8

PE. 06.10.16

8

PE. 06.10.16

8

PE. 06.10.17

8

15.0

QC5/9

WELD INSPECTION



Comment: WELD INSPECTION

PE. 06/10/18 (8)

16.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Touch up Chemical Conversion Coat as per QSI 005 4.1

FC 06 10 19 (8)

17.0

POWDER COATING

POWDER COATING



Comment: POWDER COATING

Powder Coat White Gloss (Ref: 4.3.5.1) as per QSI 005 4.3

yl FC 06/10/23 X8

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes ☒ No ☐ DQA: ☒ Date: 06/10/18

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
06-10-18	14	rivet broke short inside stem.	JB 06-10-18	drill out rivet drill hole at aft end take out old rivet fill hole put new rivet weld AS per QSR/0014: grind flush	JE. 06-10-18	2008	JB 07-2-18	JE 06-10-18

NOTE: Date & initial all entries

Date: Tuesday, 10/3/2006 2:58:09 PM
User: Kim Johnston

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: SHORT STEP ASSEMBLY, LO-SKID

Job Number: 28843

Part Number: D350591115

Job Number:



Seq. #:	Machine Or Operation:	Description :
---------	-----------------------	---------------

18.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Wing Walk per Dwg D2354 and QSI 005 4.4

Batch: 102098

FL 06 10 23 (8)

19.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

10/06 10 23

(8)

20.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Pick Packing Kit

21.0

D2171

Clamp



Comment: Qty.: 2.0000 Each(s)/Unit Total: 16.0000 Each(s)

Clamp

Batch: B27844

22.0

D2182

Heat Shrink



Comment: Qty.: 0.5830 f(s)/Unit Total: 4.6640 f(s)

Rubber Cushion 3.5" long x2

Batch: B21864

B28042

→ RECENTRE S.V.P.

23.0

D2274

Radius Block



Comment: Qty.: 4.0000 Each(s)/Unit Total: 32.0000 Each(s)

Radius Block

Batch: B28824

24.0

D23625

Support Bracket



Comment: Qty.: 1.0000 Each(s)/Unit Total: 8.0000 Each(s)

Support Bracket

Batch: B13344

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Tuesday, 10/3/2006 2:58:10 PM
User: Kim Johnston

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: SHORT STEP ASSEMBLY, LO-SKID

Job Number: 28843

Part Number: D350591115

Job Number:



Seq. #:

Machine Or Operation:

Description :

25.0

AN337A

Bolt



Comment: Qty.: 2.0000 Each(s)/Unit Total : 16.0000 Each(s)

Bolt

Batch:

M14478

26.0

AN420A

Bolt



Comment: Qty.: 4.0000 Each(s)/Unit Total : 32.0000 Each(s)

Bolt

Batch:

M14855 3X, M16895 29X

27.0

AN422A

Bolt



Comment: Qty.: 1.0000 Each(s)/Unit Total : 8.0000 Each(s)

Bolt

Batch:

M17280

28.0

AN960JD10

Washer



Comment: Qty.: 4.0000 Each(s)/Unit Total : 32.0000 Each(s)

Washer

Batch:

M15573

29.0

AN960JD416

Washer



Comment: Qty.: 6.0000 Each(s)/Unit Total : 48.0000 Each(s)

Washer

Batch:

M19185

30.0

MS21042L3

Nut



Comment: Qty.: 2.0000 Each(s)/Unit Total : 16.0000 Each(s)

Pick:

Packing Kit Qty Part Number Description Batch

2 MS21042L3

Nut (or -3)

M107390

31.0

MS21042L4

Nut



Comment: Qty.: 5.0000 Each(s)/Unit Total : 40.0000 Each(s)

Pick:

Packing Kit Qty Part Number Description Batch

MS21042L4

Nut (or -4)

M19099

1 X D2856-400-720

B 28258

5'8"

PDS Surti

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Tuesday, 10/3/2006 2:58:10 PM
User: Kim Johnston

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: SHORT STEP ASSEMBLY, LO-SKID

Job Number: 28843

Part Number: D350591115

Job Number:



Seq. #:

Machine Or Operation:

Description :

32.0

QC4

INSPECT 100% KITS FOR COMPLETENESS



Comment: INSPECT 100% KITS FOR COMPLETENESS

1306/10/24 (8)

33.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and pack for shipping as per PPP D350-591-111

Location: _____

PPP Rev: G

US V

1306/10/24 (8)

118

34.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

1306/10/25

Job Completion



1306/10/25

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
06/10/25	33	permanent chg. should read PPL per 350-591-115	Le	06/10/25		Le	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART

DESIGN KE	DRAWN BY PH	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED #	APPROVED #	DRAWING NO. D2354	REV. D SHEET 1 OF 2
DATE 05.11.14		TITLE LOW SHORT STEP ASSEMBLY	SCALE NTS
A	95.02.14	NEW ISSUE	
B	97.05.22	END CAPS CHANGED	
C	97.07.23	ADDED BUSHING AND FACING INFO	
D	05.11.14	UPDATE FINISHING NOTE	

D2354 LOW SHORT STEP ASSEMBLY PARTS LIST

Part No.	Description	QTY
D2354	Low Short Step Assembly	X
D2244-59.4	STEP EXTRUSION*	1
D2275	BUSHING	1
D2643-1	STEP LEG ASSEMBLY	1
D2643-2	STEP LEG ASSEMBLY	1
D2673-34	STEP END PLATE	2
MS20600AD4W3	RIVETS	12

*cut per drawing

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 28843

RELEASED
05.11.28

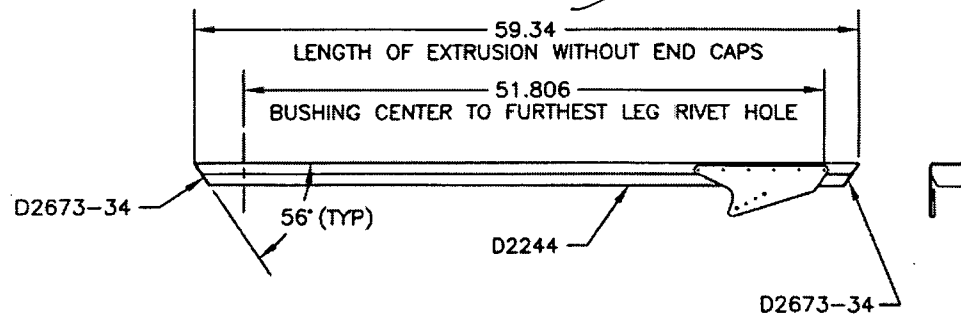
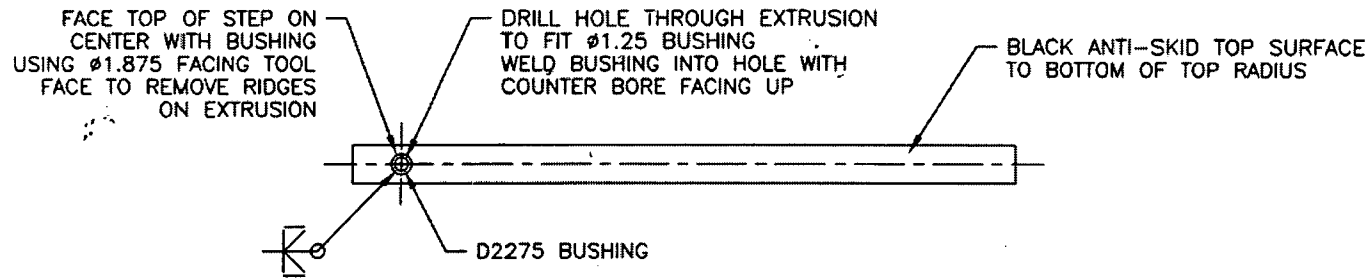
Copyright © 1995 by DART AEROSPACE LTD

THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.

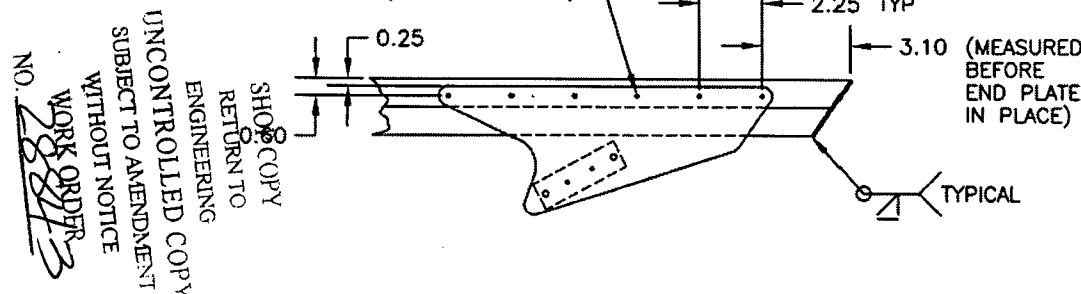
DART

DESIGN	KE	DRAWN BY	DH	DART AEROSPACE LTD
CHECKED	<i>[Signature]</i>	APPROVED	<i>[Signature]</i>	HAMKESBURY, ONTARIO, CANADA
DATE	05.11.14	DRAWING NO.	D2354	REV. 0
		TITLE	LOW SHORT STEP ASSEMBLY	SHEET 2 OF 2
				SCALE
				MIS

RELEASED
05.11.28



DRILL $\phi 0.128$ ON BOTH SIDES OF D2244 TO MATCH D2643-1/-2 HOLE PATTERN RIVET D2643-1/-2 TO D2244 USING MS20600AD4W3 (TYP. 12 PLACES)



STEP LEG DETAIL

D2354 LOW SHORT STEP ASSEMBLY

- 1) MAKE FROM D2244 STEP EXTRUSION
- 2) WELD PER DART QSI 004
- 3) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
POWDER COAT ASSEMBLY WHITE (4.3.5.1) PER DART QSI 005 4.3
BLACK ANTI-SKID PAINT PER DART QSI 005 4.4
- 4) ALL DIMENSIONS ARE IN INCHES
- 5) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED